

WHAT IS CLAIMED IS:

1. A rotary contactless connector comprising:

a rotary transformer (1) composed of a rotor (3) that has a transformer rotary winding (2) and an annular stator (5) that is concentric with the rotor (3) and has a transformer stator winding (4);

a rotating-side light emitting element (8) or a rotating-side light receiving element provided on the rotor (3); and

a stationary-side light emitting element or a stationary-side light receiving element (11) that is fixedly disposed to oppose the rotating-side light emitting element (8) or the rotating-side light receiving element,

wherein electric power is supplied to the rotor (3) through the rotary transformer (1) to perform optical communication, and

a power output of the rotary transformer (1) is divided into two outputs, one (1a) being directly coupled to the electric circuit (9), while the other (1b) being coupled to the electric circuit (9) through the intermediary of storage means (12) composed of a capacitor or a storage cell.

2. A rotary contactless connector according to Claim 1, wherein a nonmagnetic and non-magnetized bearing (6) is

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provided between the rotor (3) and the annular stator (5).

3. A rotary contactless connector according to Claim 1, further comprising an electric circuit (9) for driving the rotating-side light emitting element (8) or the rotating-side light receiving element,

wherein electric power is supplied to the electric circuit (9) through the intermediary of the rotary transformer (1).

4. A rotary contactless connector according to Claim 3, wherein

the electric circuit (9) is provided in the rotor (3).

5. A rotary contactless connector according to Claim 1, wherein the rotating-side light emitting element (8) or the rotating-side light receiving element is provided at the central position of the rotor (3).

6. A rotary contactless connector according to Claim 1, wherein a plurality of the rotating-side light emitting elements (8) or the rotating-side light receiving elements are provided at the concentric circumferential positions other than the central position of the rotor (3).

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7. A rotary contactless connector according to Claim 5, wherein a plurality of the rotating-side light emitting elements (8) or the rotating-side light receiving elements are provided at the concentric circumferential positions other than the central position of the rotor (3).

8. A rotary contactless connector according to Claim 1, wherein a plurality of the rotating-side light emitting elements (8) or the rotating-side light receiving elements are provided in the radial direction of the rotor (3).

9. A rotary contactless connector according to Claim 5, wherein a plurality of the rotating-side light emitting elements (8) or the rotating-side light receiving elements are provided in the radial direction of the rotor (3).

10. A non-rotary contactless connector comprising:  
a first stationary member (101) having a transformer first winding (100);

a second stationary member (103) that is disposed to oppose the first stationary member (101) and has a transformer second winding (102);

a first light emitting element (110) or light receiving element provided on the first stationary member (101); and

a second light receiving element (111) or light

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emitting element provided on the second stationary member (103),

wherein electric power is supplied to the first stationary member (101) from the second stationary member (103) on a power-supplying side by means of magnetic coupling between the transformer windings (100 and 102) to perform optical communication,

an electric circuit (120) for driving the first light emitting element (110) or light receiving element in the first stationary member (101) is provided, and

electric power is supplied to the electric circuit (120) through the intermediary of the transformer first winding (100) or the transformer second winding (102).

11. A non-rotary contactless connector according to Claim 10, wherein a power output of the transformer first winding (100) is divided into two outputs, and one is directly coupled to the electric circuit (120), while the other is coupled to the electric circuit (120) through the intermediary of storage means (130) composed of a capacitor or a storage cell.

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